

EXECUTIVE SUMMARY

This Broome County Multi-Jurisdictional Hazard Mitigation Plan was prepared in response to the Disaster Mitigation Act of 2000 (DMA 2000). DMA 2000 requires states and local governments to prepare hazard mitigation plans in order to remain eligible to receive pre-disaster mitigation funds that are made available in the wake of federally-declared disasters. **To restate, by not participating in this process and adopting the resulting plan, municipalities will not be eligible to receive future pre-disaster mitigation funding.** It is also important to remember that pre-disaster mitigation funds are separate and distinct from those federal and state funds used in direct post-disaster relief. The availability of those funds remains unchanged; if there is a federally-declared disaster in Broome County, the affected municipalities will still receive immediate recovery assistance regardless of their participation in this plan.

Hazard Mitigation is any sustained action taken to reduce or eliminate the long-term risk and effects that can result from specific hazards.

FEMA defines a **Hazard Mitigation Plan** as the documentation of a state or local government's evaluation of natural hazards and the strategy to mitigate such hazards.

However, DMA 2000 effectively improves the disaster planning process by increasing hazard mitigation planning requirements for hazard events and requiring participating municipalities to document their hazard mitigation planning process and identify hazards, potential losses, and mitigation needs, goals, and strategies.

Broome County Multi-Jurisdictional Planning Process

DMA 2000 requires states to submit comprehensive Hazard Mitigation Plans to the Federal Emergency Management Agency (FEMA) to be eligible for future pre-disaster mitigation funding. Local entities must also develop plans. To comply, Broome County and the majority of municipalities in the county have developed and adopted this Multi-Jurisdictional Hazard Mitigation Plan (see the text box below for the municipalities that participated in this multi-jurisdictional Plan). Once the mitigation plan is completed and approved, the participating jurisdictions will begin to work collaboratively to address data gaps and implement complementary mitigation actions.

City of Binghamton
Town of Barker
Town of Binghamton
Town of Chenango
Town of Colesville
Town of Dickinson
Town of Fenton

Town of Kirkwood
Town of Lisle
Town of Maine
Town of Nanticoke
Town of Sanford
Town of Triangle
Town of Vestal

Town of Windsor
Village of Endicott
Village of Johnson City
Village of Lisle
Village of Port Dickinson
Village of Whitney Point
Village of Windsor

To support the planning process for this Hazard Mitigation Plan, Broome County and the participating jurisdictions accomplished the following:

- Developed a planning group (Steering Committee);
- Identified hazards of concern;
- Profiled and prioritized these hazards;
- Estimated inventory at risk and potential losses associated with these hazards;
- Developed mitigation strategies and goals that address the hazards that impact the area; and
- Developed mitigation plan maintenance procedures to be executed upon conditional approval of the plan from the New York State Emergency Management Office (SEMO) and FEMA.

As required by DMA 2000, the participating jurisdictions and Broome County have informed the public about these efforts and provided opportunities for public comment and input on the planning process. In addition, numerous agencies and stakeholders have participated as core or support members to provide input and expertise to the planning process. This Hazard Mitigation Plan documents the process and outcomes of the jurisdictions' mitigation planning efforts.

Broome County and the participating jurisdictions intend to incorporate mitigation planning as an integral component of daily government operations through existing processes and programs. A notice regarding the existence of the plan and the location of copies of the mitigation plan has been publicized in the *Broome County Times* and the plan will be posted on the Broome County web site and made available for review at local libraries. Updates to the plan will be similarly announced after annual plan reviews and 5-year updates. The Hazard Mitigation Coordinator at the Broome County Planning Department will be responsible for receiving, tracking, and filing public comments regarding this plan.

Broome County Risk Assessment to Support Mitigation Plan

A key component of a mitigation plan is the accurate identification of risks posed by a hazard and the corresponding impacts to the community. The process of identifying hazards of concern, profiling hazard events, and conducting a vulnerability assessment is known as a risk assessment. The risk assessment portion of the mitigation planning process included the steps shown in Figure ES-1. Each of these steps is summarized below.

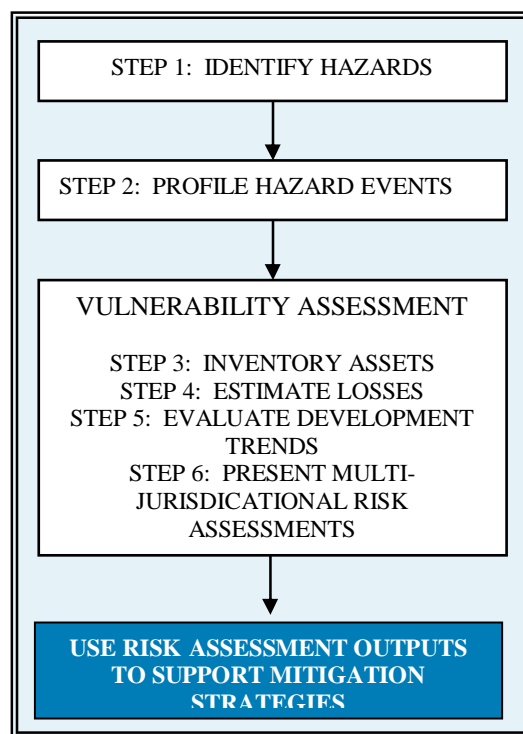
Step 1: Hazard Identification

The area considered as the study area for this risk assessment includes the entirety of Broome County. The risk assessment process was initiated by implementation of the Hazards New York (HAZNY) analysis, a qualitative ranking system developed by the American Red Cross (ARC) and SEMO. HAZNY is an automated interactive spreadsheet designed to evaluate hazards on a statewide basis. The program interface asks specific questions about potential hazards in a community and records and evaluates the responses to these questions. HAZNY also includes historical and expert data on selected hazards. HAZNY is designed specifically for group, rather than individual use.

A full range of natural hazards was considered by the Steering Committee. The HAZNY screening process included consideration of 25 hazards. Initially, some hazards were screened out from consideration based on their low frequency of occurrence in this geographical area; for example, tsunamis and earthquakes were considered to be unlikely and of low potential impact in the area. All geographically relevant hazards were considered and a list of 10 natural hazards of concern was selected from the initial pool of hazards. Hazards retained for further evaluation included those with HAZNY scores of at least moderately low severity based on the HAZNY scoring system (i.e., the hazard scored at least 161 points out of a possible 400 using the model).

The order and grouping of the 10 natural hazards was re-configured by the Steering Committee based on additional research and the professional judgment and evaluation of the planning group regarding the

Figure ES-1. Risk Assessment



frequency, magnitude, geographic extent, possible direct and cascading effects, impacts to critical facilities and vulnerable populations, and historic costs associated with each hazard. The following list of 10 hazards of concern, in order of significance to the community, was selected for further evaluation in the mitigation plan:

Hazards of Concern
Flooding (Flash / Riverine)
Severe Storms (windstorms, hurricane, tropical storms, thunderstorms, hail, lightning and tornado)
Severe Winter Storm (snow, blizzard)
Ice Storm
Ice Jam
Epidemic (Human)
Landslide
Wildfire
Drought
Extreme Temperatures

Of the 10 analyzed hazards, the flood and severe storm hazards were ranked as moderately high severity based on the initial HAZNY scoring system. The remaining 8 hazards are considered to present moderate to low risk. Table ES-1 presents a summary of all priority hazards of greatest concern in Broome County, including the monetary impacts associated with former hazard events that have taken place throughout the County.

Table ES-1. Summary of Priority Hazards of Greatest Concern in Broome County

Hazard	Years	# of Events	Impacts (Approximate \$)	Available Data Sources and Maps
Natural				
Flood (Flash / Riverine)	1935-2006	44 Annual events = 4.4 (NWS)	\$31.4M (1950-2005) – NOAA National Climate Data Center (NCDC) \$6.5M paid in losses (1978-2006) – NFIP \$8.1M in property damages over 7 events (1995-2000) - USC Hazard Research Lab \$28.7M in property damages, \$25K in crop damage (1960-2005) - SHELDUS \$35M – (City of Binghamton Timeline) \$1.4M (DR 1564 & 1565 - Aug. – Sept. 2004) \$9.2M (DR 1589 - Apr. 2005)	NOAA-NCDC, Broome County historical data, NWS, HAZNY, FEMA, NFIP, NY SEMO, USC Hazard Research Lab, SHELDUS
Severe storm (including thunderstorm, wind, hail, lightning, tornado and hurricane)	1950-2005	Severe storm: 140 (NWS); Hurricane: 8 Tornadoes: 8	\$14.6M in damages and 1 death/43 injuries (1950-2005) – NOAA NCDC \$3.0M in damages and 531 injuries(1995-2000) - USC Hazard Research Lab \$750K (1960-2005) – SHELDUS \$1.8M (DR 1222 – May 1998) \$1.4M (DR 1564 & 1565 - Aug. – Sept. 2004) – Same as Above \$9.2M (DR 1589 - Apr. 2005) – Same as Above	NOAA-NCDC, NWS, Broome County historical data, HAZNY, NOAA National Hurricane Center, FEMA, USC Hazard Research Lab, SHELDUS
Severe winter storm (Snow)	1950-2005	108 heavy snow and ice (NWS)	\$50K (other counties included) – NOAA-NCDC \$595K (1995-2000) - USC Hazard Research Lab \$161K (1960-2004) – SHELDUS \$684K (EM3173 – Dec. 2002 – Jan 2003) -	NOAA-NCDC, USC Hazard Research Lab, FEMA, NWS, SHELDUS

Hazard	Years	# of Events	Impacts (Approximate \$)	Available Data Sources and Maps
			FEMA	
Ice Storm	1994-2003	12	\$3.2M (other counties included) – NOAA-NCDC	NOAA-NCDC
Ice Jam	1904-2005	37	\$50K (Chenango Bridge – Mar. 2004) – NOAA NCDC	NOAA-NCDC, USACE Cold Region Research and Engineering Laboratory (CRREL), Northeast States Emergency Consortium (NESEC)
Epidemic(human)	1998 - 2003	Not Available	70 birds, 7 humans, 2 horses and 12 mosquito pools tested positive for WNV (NYSDOH) EM 3155 - Emergency Declaration for WNV Threat in October 2000 (FEMA) Measles - 1 suspected case in 1999 (BCHD) Malaria - 2 cases in 1998 & 1999 (BCHD) WNV - 6 cases and 1 probably case in 2002 (BCHD) Lymes Disease - 5 cases in 2003, 1 case in 2002, 5 cases in 2000, 1 probable case in 1999 and 1 case in 1998 (BCHD)	NYSDOH, FEMA, Center of Disease Control and Prevention (CDC), Broome County Health Department (BCHD)
Landslide	NA	0	NA	NA
Wildfire	NA	0	NA	NA
Drought	1996-2000	1	\$2.9M (1999) – USC Hazard Research Lab and SHELDUS County-wide cropland impacted as a result of 2000 drought event (Broome County Farm Service Agency)	NOAA-NCDC, USC Hazard Research Lab
Extreme Temperatures	NA	0	NA	NA

Source: Modified from FEMA 386-2, Worksheet #1 (FEMA 2001).

Notes:

BCHD-Broome County Health Department

CDC – Center of Disease Control and Prevention

FEMA – Federal Emergency Management Agency

HAZNY – Hazards New York

NESEC – Northeast States Emergency Consortium

NFIP – National Flood Insurance Program

NOAA-NCDC – National Oceanic and Atmospheric Administration-National Climate Data Center

NWS – National Weather Service

NYSDOH – New York State Department of Health

NY SEMO – New York State Emergency Management Office

SHELDUS –Spatial Hazard Events and Losses Database for United States

USACE-CRREL – U.S. Army Corps of Engineers – Cold Region Research and Engineering Lab

USC – University of South Carolina

USEPA SDWIS – U.S. Environmental Protection Agency – Safe Drinking Water Information System

Step 2: Hazard Event Profiles

As shown above, some hazards initially considered were consolidated with, or separated from, other hazards to avoid redundancy and to facilitate conceptualization of the hazards. The hazards are usually grouped by their root causes (i.e. natural, technological or human-caused), with natural hazards being the main focus of this HMP. Profiles of all natural hazards considered for Broome County are grouped in Section 4 and are addressed in order according to the priority of each hazard.

For each hazard listed above, a hazard event profile presents following information:

- 1) Background and local conditions
- 2) Historic frequency and probability of occurrence
- 3) Severity
- 4) Historic losses and impacts
- 5) Designated hazard areas

Other factors considered in the profiling process include the potential impact, onset, frequency, hazard duration, cascading effects and recovery time for each hazard. For this mitigation plan, considerable research was conducted to complete the profiles for the 10 hazards of interest. Where applicable, the source(s) of information and data and maps showing vulnerable areas, relevant community components, and Geographic Information Systems (GIS) coverage also are provided. Table ES-2 summarizes the hazards identified for the Broome County Multi-Jurisdictional Study Area and those that impact particular jurisdictions. Input from each jurisdiction, the public and local agencies and hazard experts were used to identify specific jurisdictions identified as being more vulnerable to certain hazards.

Table ES-2. Summary of Multi and Single Jurisdiction Risk Assessment Outcomes – Risks of Particular Concern

Hazard	County-wide	Jurisdictions Particularly Vulnerable
Natural Hazards		
Flooding (Flash / Riverine)	x	Towns and Villages along the Susquehanna and Chenango Rivers.
Severe Storms	x	All
Severe Winter Storm	x	All
Ice Storm	x	All
Ice Jam	x	Towns and Villages along the Susquehanna and Chenango Rivers.
Epidemic (Human)	x	All
Landslide	x	All
Wildfire	x	All
Drought	x	All
Extreme Temperatures	x	All

For each hazard, the Steering Committee provided a preliminary overall assessment of the relative risk of that hazard as part of the profile. The overall assessment of each hazard ranges from no concern to severe concern. The Hazard Risk Gauge presented with each profile summarizes the preliminary ranking assigned to each hazard.

Vulnerability Assessment

The vulnerability assessment is summarized below.

Step 3: Inventory of Assets

After a prioritized ranking of hazards of concern was developed, a GIS-based risk assessment methodology called Hazards U.S.-Multi-Hazard (HAZUS-MH) was used to prepare and display the

inventory of assets for the multi-jurisdictional study area. The inventory of assets considers the range of resources that could be lost or damaged if a hazardous event occurs. Local data supplemented the HAZUS-MH provided data. Specific assets evaluated for this risk assessment include: population, general building stock (residential and commercial), critical facilities (including, hospitals, schools, police and fire stations), and infrastructure (transportation systems and utility systems).

Step 4: Loss Estimates

Quantitative loss estimates were obtained for the flood and severe storm hazards. Qualitative evaluations were performed for those hazards with limited past event and total loss data. All of the hazards of interest were analyzed using the best available data and FEMA tools and methodologies.

Where quantifiable loss estimates are not yet feasible, comparative evaluations present the types of impacts that could occur, current knowledge of the study area relative to each hazard, and a qualitative assessment of each hazard. For these hazards, future efforts will include the development of additional data so that in the long term, quantitative loss estimates may be feasible.

For this portion of the risk assessment, available data, methodologies, and assumptions were used to select and apply a risk assessment methodology for each hazard. Table ES-3 shows the risk assessment methodologies selected for each hazard.

Hazard	Comments	Output
HAZUS-MH Methodology		
Flood	HAZUS-MH-provided data were used and supplemented with local data for critical facilities. The HAZUS-MH models were used to obtain exposure and loss estimates.	HAZUS-MH Exposure and Loss Estimate Maps, Tables and Text
Severe Storm		
HAZUS-MH Supported Methodology		
Severe Winter Storm	Sufficient historic data were not available to forecast the probability of future hazard events. However, available historic and professional expertise regarding areas at risk for each hazard was compiled from a variety of sources. Professional judgment and available data were then used to evaluate past and potential events, and assess risks in a qualitative manner. HAZUS-MH was used to support inventory evaluations and graphical presentations of areas at risk.	HAZUS-MH Supported Exposure Estimates and Input to Data Needs Portion of Mitigation Strategy (Section 5)
Ice Storm		
Ice Jam		
Epidemic (Human)		
Landslide		
Wildfire		
Drought		
Extreme Temperatures		

Table ES-4 presents the total exposure value (structure and content) for buildings in the flood zone considered “at risk” for both the 100-year and 500-year MRP flood events.

Table ES-4. Estimated Exposure Values for General Building Stock from Floods in Broome County Study Area

Occupancy Class	100-year Flood		500-year Flood	
	Building Count	Dollar Value	Building Count	Dollar Value
Residential Exposure (Single and Multi-Family Dwellings)	3,011	\$631M	7,660	\$1.9B
Commercial Exposure At-Risk	48	\$252M	202	\$845M
Industrial Exposure At-Risk	12	\$770M	32	\$241M

Occupancy Class	100-year Flood		500-year Flood	
	Building Count	Dollar Value	Building Count	Dollar Value
Educational (Universities)	0	\$0	1	\$47M
TOTAL AT-RISK	3,071	\$1.65B	7,895	>\$3B

Note: TBD indicates to be determined. NE indicates not evaluated. Dollars rounded to the nearest hundred thousand. M=Million; B=Billion. *Village exposure data is not included in these totals and will be included in a revision to this plan.*

For this risk assessment, loss estimates and exposure calculations rely on the best available data and methodologies. Uncertainties are inherent in any loss estimation methodology and arise in part from incomplete scientific knowledge concerning natural hazards and their effects on the inventory, or built, environment. Therefore, potential exposure and loss estimates are approximate and do not predict precise results but rather are used to characterize risk and assign priorities for mitigation efforts.

Step 5: Evaluation of Land Use, Development and Population Trends

Broome County is a rural community located within the south-central part or “Southern Tier” of NYS. The Southern Tier is a geographical term that refers to the counties of New York State west of the Catskill Mountains along the northern border of Pennsylvania. It is directly west of Delaware County, 137 miles southwest of Albany and approximately 177 miles northwest of NYC. Broome County occupies approximately 715 square miles and is home to approximately 197,647 (U.S. Census Bureau 2005). While the population density of Broome County is very low compared to the densely populated New York Boroughs, it is comparable to other counties in the region.

Development increases population and structures and therefore, can increase the impact of hazards on a community. For example, heavy development planned for a flood-prone area would likely increase the impact of the flood event as time progresses.

This mitigation plan provides a general overview of current and anticipated land use, development and population trends within the study area. This information provides a basis for making decisions regarding the type of mitigation approaches to consider and the locations in which these approaches should be applied. This information can also be used to support decisions regarding future development in vulnerable areas. For potential increases in vulnerability, the municipalities can then plan ahead to mitigate those vulnerabilities early in the development process or can direct development to areas of lower risk. The Steering Committee will revisit the mitigation plan regularly to ensure that mitigation strategies support sustainability in order to minimize increased risk and to support the implementation and targeting of specific mitigation actions to address the potential impacts of development over time.

Land Use and Development Trends

There are two significant constraints to new development in Broome County: steeply sloped topography and lack of public water and sewer in outlying areas. Taken together, these constraints tend to force new development, especially large-scale commercial and industrial development, into the river valleys. The flattest land in the County is found within the 100 and 500 year floodplains. Water and sewer is less of a constraint for residential new construction, as much of the county is served by private septic systems and wells.

Retail development over the past decade has been concentrated in the eastern and central portion of the Town of Vestal along the Vestal Parkway (NYS Route 434). This section of the Vestal Parkway corridor is approaching full build out, and maximum traffic carrying capacity. There is some opportunity for new development and redevelopment of older shopping centers along the Parkway to the west, but more recent

development trends have begun to favor other portions of the county as developers look for lower real estate costs and less congested traffic. One area of concern in Vestal is Vestal Road. This secondary road parallels the Vestal Parkway and is currently dominated by industrial and mining operations, but development pressure could spur new retail and office park construction in this area as well. Much of this area is within the floodplain, and was severely impacted by the June 2006 floods.

The most significant new commercial development corridor of the past few years has been Upper Front Street in the Towns of Dickinson and Chenango. Several medium to large scale retail plazas with national chain stores such as Staples and Lowes have opened at the northern end (Chenango) of this corridor and The Gardens, a restaurant, hotel, and multiplex movie complex, has opened at the southern end (Dickinson). Significant retail development and redevelopment of older plazas can be expected between these two nodes as well as along Route 12 and Route 12A to the north and east of the corridor. Much of this area is within FEMA designated floodplains, but was not severely impacted by the June 2006 flooding.

Manufacturing new construction has largely been stagnant, but this may turn positive over the next decade. In June 2005, Lockheed Martin, a defense contractor in neighboring Tioga County, secured a \$6.1 billion Navy contract to build the US 101 presidential helicopter replacement fleet. To fulfill this contract, Lockheed Martin built a \$30 million, 176,000 square foot facility in Owego, and they will be adding 700 plus workers. In addition, Lockheed Martin is competing with three other U.S. companies for an \$8 billion contract to build up to 141 CSAR-X combat search and rescue aircraft for the Air Force and they recently signed \$132 million in defense contracts from the Army and the Navy. (Source: NYS Department of Labor) These developments may spur additional hiring and new construction for subcontractors and suppliers in the region. The Broome Corporate Park in Conklin and the Industrial Park in Kirkwood are both nearing capacity and any major new development would likely be located elsewhere.

Much of Lockheed Martins new hiring has been from outside the area. This has added greatly to the housing demand in Broome County. Many of the new hires have expressed dissatisfaction with the area's older housing stock, and this has begun to lead to greater demand for new homes.

To meet this and other pent up demand, new residential construction within the past decade has consisted primarily of higher-end housing built in subdivisions and on individual lots located along streets and rural roads off the major arterials. This housing is typically more expensive and larger scale, bordering on estates in some instances, relative to the housing that was built in previous decades. This new development has occurred primarily in the towns of Vestal, Chenango and Union and in the Village of Johnson City, mirroring the municipalities with the most new commercial development and activity in the County. Housing developments have also occurred in the Town of Binghamton.

New subdivision construction has occurred off Taft Road and Hooper Road in the Town of Union; off Reynolds Road in the Village of Johnson City; off NYS Route 26, Rano Boulevard and Jenson Road in the Town of Vestal; and off Poplar Hill Road in the Town of Chenango. New residential subdivisions and townhouse developments have also been completed off Pennsylvania Road in the Town of Binghamton. New estate homes are scattered along Bunn Hill Road in the Town of Vestal and along Brotzman Road in the Town of Chenango.

Other residential projects are in the planning process. These recent proposals include a 99-lot subdivision proposal off Glenwood Road in the Town of Dickinson; Forest Villa Estates, a 19 two-unit residential subdivision off Reynolds Road in the Village of Johnson City; the Pines at Stoney Creek, a 6-story condominium building and 64-single home planned unit development off Twist Run Road and Farm-to-Market Road in the Town of Union; and a 111-unit residential townhouse subdivision located off Watson

Boulevard in the Town of Union. Several residential subdivisions are in various stages of development in the Town of Vestal with some homes completed and others planned for the future. These developments include a 6-lot subdivision off Jenson Road; Country Gate, a 20-unit subdivision off Foster Road; a 30-unit subdivision off Fuller Hollow Road; approximately 30 additional units planned for the Sunbriar Estates off Jenson Road; and Lynnhurst, a 20-unit subdivision off Holly Hill Road.

Recent housing proposals include two non-profit, senior housing projects: a 24-unit senior housing development planned along NYS Route 26 in the Town of Vestal and a 32-unit senior housing project with a separate community building planned for Clapham Street in the City of Binghamton; and one for-profit senior housing development: 164-senior housing units in a planned unit development planned for Kot Road and Rhodes Road in the Town of Union.

Additional new demand has come from the east, with downstate buyers looking for undeveloped land. This interest has been concentrated in the eastern Broome towns of Sanford, Windsor, and Colesville. Although there is strong interest, and numerous real estate transactions, this activity has not yet begun to generate large-scale residential or commercial projects.

As residential construction moves farther out of the river valleys it tends to push into areas with more steeply sloped topography. The BCPED and local planning boards are hampered in controlling this development pressure by the lack of up-to-date soil maps and accurate topography for the County. Residential new construction in steeply sloped areas may increase risk of landslides and severe erosion.

Population Trends

Over the past decade (1990 – 2000) the population of Broome County experienced a significant decline of nearly 5.5%, with the City of Binghamton showing the greatest decrease of 10.6%. Over the long term, the most dramatic feature has been the nearly 40% loss of population in the City since 1940. Over this same period of time, the greatest increase was experienced in the Town of Vestal with over 360% growth, while the Town of Chenango experienced 250% growth. The population of the suburban towns generally doubled over this 60 year period, including the Towns of Barker, Binghamton, Colesville, Conklin, Fenton, Kirkwood, Maine, Nanticoke and Windsor.

Step 6: Multi-Jurisdictional Risk Assessment

Within Broome County’s prepared multi-jurisdictional risk assessment, a summary of any particular risks faced by individual municipalities adopting the plan is included. See Table ES-2 for the results of the multi-jurisdictional risk assessment. Losses for each municipality for particular hazards are included in the vulnerability assessment for those hazards, as appropriate in Section 4.4 and are summarized in Section 4.5.

Broome County Mitigation Strategies

The outcomes of the risk assessment, supplemented by community input, provided a basis to review past mitigation actions, future goals and objectives, and appropriate countywide and municipality-specific mitigation strategies. Broome County identified the following four over-arching mitigation goals or general guidelines that summarize the hazard reduction outcomes that the county wants to achieve:

The mitigation strategy portion of the plan includes:

- A summary of past and current mitigation efforts
- Local hazard mitigation goals and objectives
- Identification and analysis of mitigation measures and projects being considered
- Multi-Jurisdictional mitigation strategy (goals and objectives)
- Mitigation action plan (summary of specific activities)

- Protect life and property
- Increase public awareness
- Encourage partnerships
- Provide for emergency services

The county developed several corresponding objectives for each goal that further define the specific strategies or implementation steps that will be needed to attain the identified goals. The goals, along with their corresponding objectives, then guided the development and evaluation of specific mitigation activities. The goals and their associated objectives are further discussed in detail below:

Goal 1: Protect Life and Property

- *Objective 1-1:* Implement mitigation activities that will assist in protecting lives and property by making homes, businesses, infrastructure, and critical facilities more resistant to hazards.
- *Objective 1-2:* Encourage property owners to take preventive actions in areas that are especially vulnerable to hazards.
- *Objective 1-3:* Better characterize flood events by conducting additional flood studies, improved flood mapping and creating flood and dam inundation models.
- *Objective 1-4:* Review existing local laws and ordinances, building codes, safety inspection procedures, and applicable rules to help ensure that they employ the most recent and generally accepted standards for the protection of buildings and environmental resources.
- *Objective 1-5:* Ensure that public and private facilities and infrastructure meet established building codes and immediately enforce the codes to address any identified deficiencies.
- *Objective 1-6:* Incorporate hazard considerations into land-use planning and natural resource management.
- *Objective 1-7:* Encourage homeowners, renters, and businesses to purchase insurance coverage for damages caused by hazards.
- *Objective 1-8:* Integrate the recommendations of this plan into existing local and county programs.
- *Objective 1-9:* Implement mitigation activities that encourage environmental stewardship and protection of the environment.
- *Objective 1-10:* Minimize new development within hazard prone areas.

Goal 2: Increase Public Awareness

- *Objective 2-1:* Develop and implement additional education and outreach programs to increase public awareness of the risks associated with hazards and to educate the public on specific, individual preparedness activities.
- *Objective 2-2:* Provide information on tools, partnership opportunities, funding resources, and current government initiatives to assist in implementing mitigation activities.

- *Objective 2-3:* Implement mitigation activities that enhance the technological capabilities of the jurisdictions and agencies in the County to better profile and assess exposure of hazards.
- *Objective 2-4:* Provide comprehensive information online to local emergency service providers, municipalities, the media and the public during and immediately following disaster and hazard events regarding emergency traffic routes, road closures, shelter locations, traffic restrictions, etc.

Goal 3: Encourage Partnerships

- *Objective 3-1:* Strengthen inter-jurisdiction and inter-agency communication, coordination, and partnerships to foster hazard mitigation strategies and/or projects designed to benefit multiple jurisdictions.
- *Objective 3-2:* Identify and implement ways to engage public agencies with individual citizens, non-profit organizations, business, and industry to implement mitigation activities more effectively.
- *Objective 3-3:* Encourage shared services in acquiring maintaining and providing emergency services and equipment.

Goal 4: Provide for Emergency Services

- *Objective 4-1:* Encourage the establishment of policies at the local level to help ensure the prioritization and implementation of mitigation strategies and/or projects designed to benefit essential facilities, services, and infrastructure.
- *Objective 4-2:* Where appropriate, coordinate and integrate hazard mitigation activities with existing local emergency operations plans.
- *Objective 4-3:* Identify the need for, and acquire, any special emergency services, training, and equipment to enhance response capabilities for specific hazards.
- *Objective 4-4:* Review and improve, if necessary, emergency traffic routes.
- *Objective 4-5:* Ensure continuity of governmental operations, emergency services, and essential facilities at the County and local level during and immediately after disaster and hazard events.

In addition, the text below summarizes mitigation activity identification, analysis, and implementation.

Identification

Outputs of the risk assessment combined with partner, planning group, and public input helped to identify potential mitigation activities. Potential activities were submitted by members of the planning group during and subsequent to regional meetings held in August, 2006. Many of the mitigation objectives and action items were identified based on current programs and activities in Broome County. The mitigation activities developed for this plan are grouped by hazard and presented in a series of tables in Section 5 of this plan.

Analysis

Throughout the mitigation planning process, members of the planning group considered various mitigation activities for the hazards identified in this plan based on the criteria listed above, current programs and policies, public considerations, and results of the risk and exposure assessments. Each

alternative mitigation activity was evaluated qualitatively using several evaluation criteria, including the Social, Technical, Administrative, Political, Legal, Economic, and Environmental (STAPLEE) opportunities and constraints of implementation.

Particular attention was given to those mitigation activities that addressed existing and new buildings and infrastructure. Few mitigation activities were removed from consideration based on the concept that it is best not to rule out any activity that may help make the communities more disaster resistant (even if funding was not currently available or an action was a lower priority at present). As a result, only infeasible options were ruled out, including those mitigation actions that were considered to present prohibitive costs, low benefit/cost analysis ratios, or other concerns based on community priorities and needs.

Implementation

Mitigation priority determination considered “the extent to which benefits are maximized according to a cost benefit review” as required by DMA 2000. Priority was also focused to maximize the benefit that the jurisdictions will gain from the activity. This will help ensure that the funds allocated to these mitigation projects are being spent efficiently. For example, many mitigation activities focus on public awareness and education programs or integrating the mitigation plan into current programs. These types of mitigation measures are more affordable and achievable and have an immediate benefit. The Steering Committee also identified specific projects that will prevent direct future losses. Neither the County nor municipalities have unlimited resources to take on new responsibilities or projects; therefore, mitigation activities that can be implemented through existing programs were considered a high priority. The implementation of new and/or additional mitigation activities is dependent on approval of the local elected governing body as well as obtaining funding from outside sources if funding has not already been secured.

The complete listing of the proposed mitigation strategies identified to address the hazards of concern affecting Broome County, along with their priority for implementation, potential funding sources, summary budget and implementation timeline, and lead and support agencies is presented in Section 5 of the Plan.

Broome County Plan Maintenance Procedures

Hazard mitigation planning is an ongoing process. Section 6 of this plan presents procedures for plan maintenance and updates. Therefore, the Steering Committee will continue ongoing mitigation efforts to implement the mitigation plan and revise and update the plan as necessary.

To monitor implementation of the mitigation plan, the planning group members will meet annually to discuss the status of plan implementation and will prepare a summary report of the plan status and any needed updates. The mitigation evaluation will address changes as new hazard events occur, as the area develops, and as more is learned about hazards and their impacts. The evaluation will include an assessment of whether the planning process and actions have been effective, whether development or other issues warrant changes to the plan or its priorities, if the communities’ goals are being reached, and whether changes are warranted. In addition, the mitigation plan will be updated at a minimum within the 5-year cycle specified by DMA 2000.

Organization of this Mitigation Plan

This plan was organized in accordance with FEMA and SEMO guidance into the following sections:

- Section 1, Introduction
- Section 2, Multi-Jurisdictional Planning Process
- Section 3, Plan Adoption
- Section 4, Risk Assessment
- Section 5, Mitigation Strategies
- Section 6, Plan Maintenance Procedures

POINT OF CONTACT

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